



# MONTHLY AIR QUALITY REPORT FOR AUGUST 2013

## AQI COLOR SCALE

<b>GOOD</b>  0-50	<b>MODERATE</b>  51-100	<b>UNHEALTHY FOR SENSITIVE GROUPS</b>  101-150	<b>UNHEALTHY</b>  151-200
	<b>VERY UNHEALTHY</b>  201-300	<b>HAZARDOUS</b>  301-500	

## Calendar of maximum AQI values & their corresponding color for August 2013\*

\*Preliminary data

### SAMPLE POLLUTANT REPORTING BOX

1 (day of month)	O3	CO
	PM10	PM2.5

SUN			MON			TUES			WED			THU			FRI			SAT		
												1	61	05	2	49	06	3	64	03
													61	30		49	27		32	25
4	47	05	5	71	06	6	40	05	7	74	05	8	90	08	9	51	09	10	45	05
	24	26		56	32		29	32		32	31		52	32		46	31		31	22
	58	05		74	06		77	07		87	07		111	03		101	05		84	05
11	36	26	12	50	31	13	52	25	14	51	31	15	54	35	16	60	37	17	120	43
	74	03		100	06		64	06		46	06		87	06		80	06		74	06
18	51	26	19	32	31	20	96	39	21	40	26	22	47	27	23	54	27	24	26	28
	43	05		54	07		64	06		49	05		47	06		41	06		39	05
25	15	17	26	151	84	27	59	44	28	52	29	29	25	19	30	23	18	31	15	18

### Calendar of High Pollution Advisories and Health Watches issued during August 2013

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

#### LEGEND

##### HIGH POLLUTION ADVISORIES

**A** = PM-10 High Pollution Advisory  
**B** = PM-2.5 High Pollution Advisory  
**C** = Ozone High Pollution Advisory

##### HEALTH WATCHES

**D** = PM-10 Health Watch  
**E** = PM-2.5 Health Watch  
**F** = Ozone Health Watch

### Calendar of Meteorological Conditions observed in Metro Phoenix during August 2013

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

#### LEGEND

##### ELECTROMETEORS

**A** = Thunderstorm

##### HYDROMETEORS

**B** = Rain/Drizzle/Hail  
**C** = Fog

##### LITHOMETEORS

**D** = Blowing Dust  
**E** = Haze (vsby <10SM)  
**F** = Smoke

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**Non-Ozone Exceedance days during AUG 2013-**

<u>Total=</u>	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
2	8/17	120	PM-10	Buckeye
	8/26	151	PM-10	West Phoenix
		128	PM-10	West Forty Third
		125	PM-10	Greenwood
		119	PM-10	Durango

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**Non-Ozone Health Watches issued during AUG 2013-**

<u>Total=</u>	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
0				

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**Non-Ozone High Pollution Advisories issued during AUG 2013-**

<u>Total=</u>	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
0				

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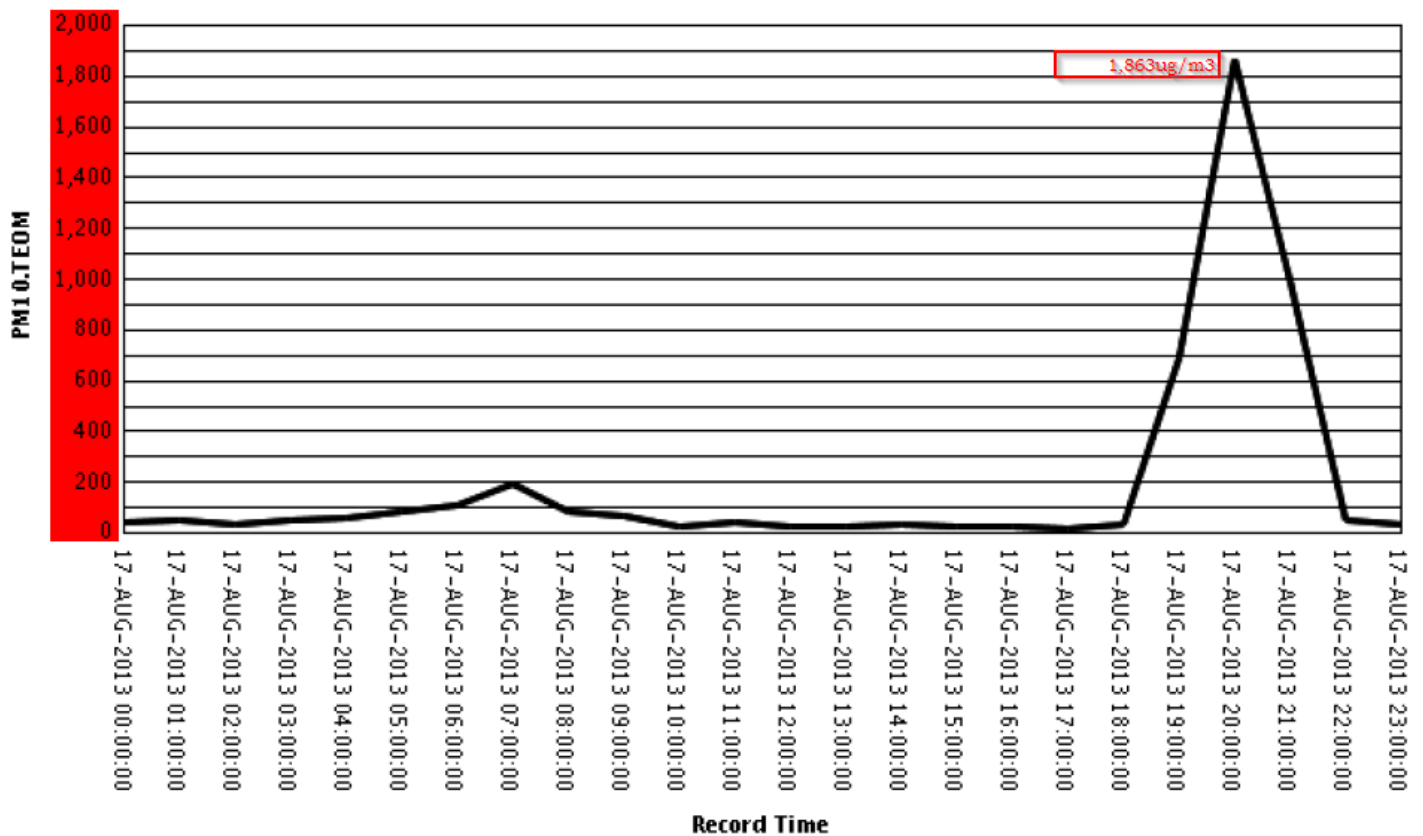
<b><u>Concentration Recap:</u></b>	Days in the <b>Good</b> category:	9
	Days in the <b>Moderate</b> category:	18
	Days in the <b>Unhealthy for Sensitive Groups</b> category:	3
	Days in the <b>Unhealthy</b> category:	1
	Days in the <b>Very Unhealthy</b> category:	0
	Days in the <b>Hazardous</b> category:	0
	Total Forecast Days:	31

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**Narrative:** Despite a very active summer monsoon during the month of August – that included episodes of dense blowing dust due to strong thunderstorm outflow winds – highest local PM-10 (coarse particle) levels managed to stay in the good or low-moderate range of the Air Quality Index during the first half of the month. This streak ended on the 17th, however, when outflow wind gusts of up to 51 mph and visibilities as low as 13/4 miles occurred over mainly the west portion of the metro area. As a result, the monitoring site at Buckeye recorded an hourly PM-10 concentration of 1,863ug/m3 at 7:00 p.m. and a 24-hour average concentration that reached 120 on the AQI which is in the unhealthy for sensitive groups range. [Figure 1](#) below shows the PM-10 time-series graph for the Buckeye monitoring site.

[Figure 1](#)

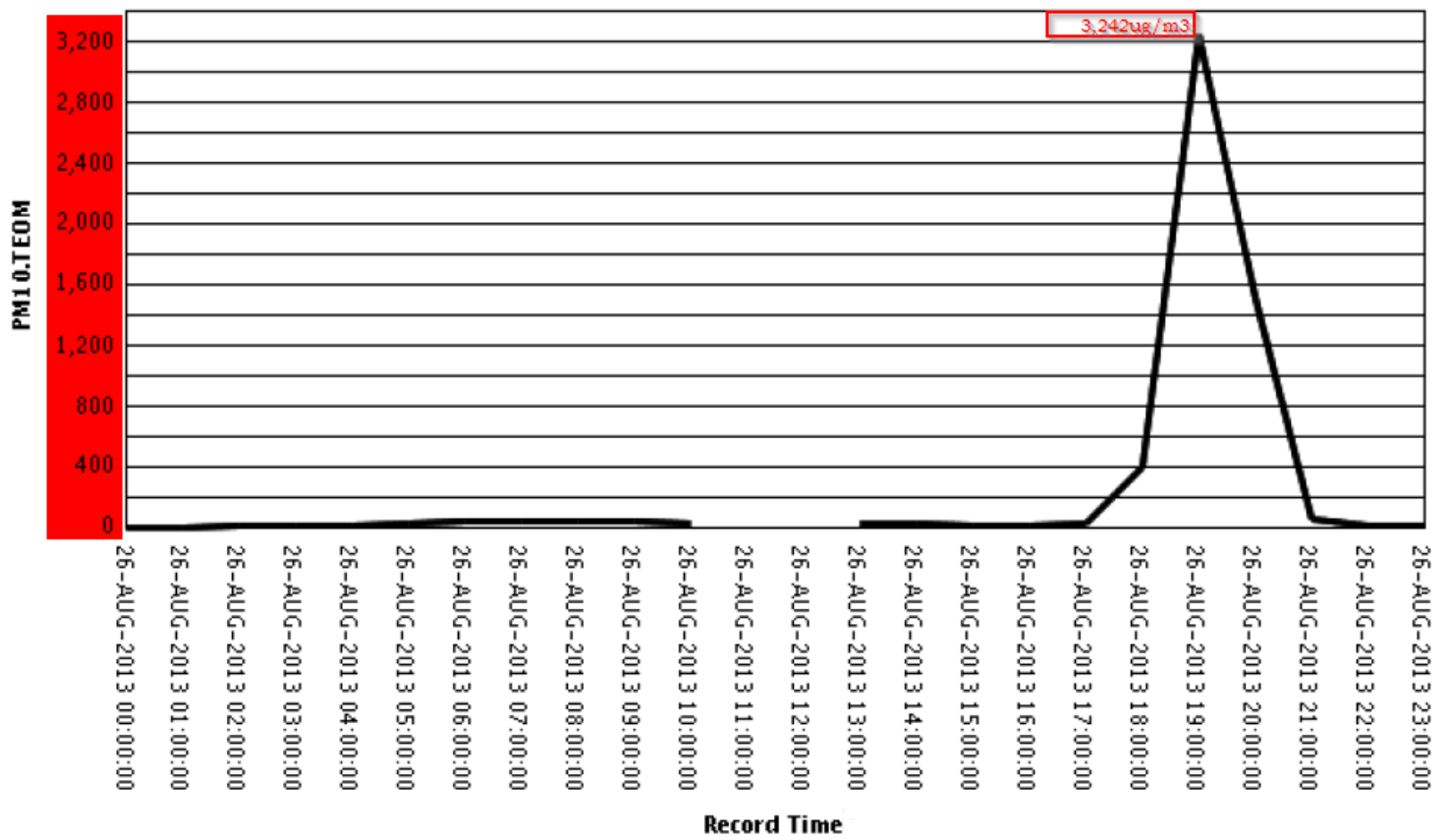
Name: **BUCKEYE**



This dust event was followed by another on August 20 that narrowly missed exceeding the PM-10 standard. Despite being followed by several days during which rainfall occurred, a major dust event then took place a week later on the 27th during which wind outflow gusts of up to 55 mph were recorded along with visibilities as low as 1/4 mile. This episode produced PM-10 exceedances at four monitoring sites with the highest AQI reading of 151 in the unhealthy range. This reading occurred at West Phoenix where an hourly PM-10 concentration of 3,242ug/m3 was registered at 7:00 p.m. [Figure 2](#) below shows the PM-10 time-series graph for the West Phoenix monitoring site. In addition, the peak PM-2.5 (fine particle) level at the same site reached the upper-moderate range of the AQI and was the only reading outside of the good range for that pollutant during the entire month anywhere in the Valley.

[Figure 2](#)

Name: WEST PHOENIX



**(Based on the 2008 EPA Revised 8-Hour Ozone Standard)**

<b>GOOD</b>	<b>MODERATE</b>	<b>UNHEALTHY FOR SENSITIVE GROUPS</b>	<b>UNHEALTHY</b>
<b>0-50</b>	<b>51-100</b>	<b>101-150</b>	<b>151-200</b>

## SUMMARY OF MAXIMUM 8-HR OZONE AQI VALUES FOR AUGUST 2013\*

\*Preliminary data

[illegible]

<b><u>8-hr Ozone exceedance days in AUG:</u></b>	Total= 2	<b><u>Date</u></b>	<b><u>Max ppb/AQI</u></b>	<b><u>Site/s</u></b>
		8/15	80/111	Phx Supersite
			78/106	North Phoenix
		8/16	76/101	Phx Supersite

**Total number of exceedance days since APR 01:** 12  
**Total number of exceedance sites since APR 01:** 51

<b><u>Ozone Health Watches in AUG:</u></b> (Forecast max value 72-75 ppb)	Total=	2	<u>Date</u>	<u>Max ppb/AQI</u>	<u>Site/s</u>
			8/09	60/51	Cave Creek
				60/51	Humboldt Mtn.
				60/51	Pinnacle Peak
			8/16	76/101	Phx Supersite

**Ozone Health Watches since APR 01:**      Total= 23

<b><u>High Pollution Advisories in AUG:</u></b> (Forecast max value 76+ppb)	Total= 1	<u>Date</u> 8/21	<u>Max ppb/AQI</u> 54/46	<u>Site/s</u> Humboldt Mtn.
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**High Pollution Advisories since APR 01:** Total= 3

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<b><u>Concentration Recap:</u></b>	Days in the <b>Good</b> category:	10
	Days in the <b>Moderate</b> category:	19
	Days in the <b>Unhealthy for Sensitive Groups</b> category:	2
	Days in the <b>Unhealthy</b> category:	<u>0</u>
	Total Forecast Days:	31
<b>Maximum 8-Hr value:</b>	<u>Date</u> <u>Hour</u> <u>Site</u> <u>ppb/AQI</u> <u>DOW</u>	
	8/15      1100      Phx Supersite      80/111      Thu	
<b>Maximum 1-Hr value:</b>	<u>Date</u> <u>Hour</u> <u>Site</u> <u>ppb/AQI</u> <u>DOW</u>	
	8/19      1500      North Phoenix      96/80      Mon	
	Average daily max 8-Hr concentration (ppb):	62.9
	Deviation from the 1996-2012 average (ppb):	<b>-6.9</b>

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<b><u>AUG Climatology:</u></b> (Period 1996-2007 using 1997 85ppb standard & 2008- 2012 using 76ppb standard)	Average number of 8-Hr exceedance days:	3.6
	Maximum number of 8-Hr exceedance days:	10 in 1998, 2000, 2012
	Minimum number of 8-Hr exceedance days:	0 in 1997, 2002, 04, 07, 09
	Average daily max 8-Hr concentration (ppb):	69.8
	Record high max 8-Hr concentration (ppb):	100 on the 10th, 2001
	Record low max 8-Hr concentration (ppb):	41 on the 6th, 2007

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<b><u>Forecast Verification:</u></b>	# of days maximum concentrations were over-forecast:	16
	# of days maximum concentrations were under-forecast:	14
	# of days maximum concentrations were correctly forecast:	1
	Aug average forecast accuracy (ppb):	+/-7.3
	Aug average forecast bias (ppb):	+2.7

**Narrative:** Local ozone levels were down markedly during August 2013 both in the long-term (the average daily max 8-hour reading was nearly seven parts per billion below the 17-year average) and in the short-term (there were only two exceedance days this month versus ten exceedance days during August 2012). A cursory look for an explanation behind this reveals that the combination of above average daytime cloud cover and/or frequent late afternoon dust storm-causing outflow winds appears to have disrupted or curtailed the local ozone plume on quite a few occasions. –Reith